ORIGINS AND ANCESTORS

Investigating New England's Paleo Indians

ROBERT S. PEABODY MUSEUM OF ARCHAEOLOGY
Phillips Academy, Andover, Massachusetts

The Robert S. Peabody Museum of Archaeology is dedicated to teaching the science of archaeology and to understanding and preserving the cultures of Native American people.

Artwork on cover and pages 20-21:
Aerial view of the Neponset site 12,000 years ago
Ink wash drawing by Ed Moore, 1997

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by James W. Bradley

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1998

The exhibition and this catalog are dedicated to "The Bull Brook Boys"—Bill Eldridge, Tony Orsini, and the Vaccaro brothers, Joe, Tony, Nick and Frank—discoverers of the Bull Brook Paleo Indian site; and Stanley Buzarewicz and the late Fred Carty, discoverers of the Paleo Indian component at the Neponset site.

The catalog was produced with support from the Maine Historic Preservation Commission, the Robert S. Peabody Museum Publication Fund, and The Public Archaeology Lab, Inc., and is based on an exhibition made possible through the generous support of The Gillette Corporation.

PREFACE AND ACKNOWLEDGMENTS

Where does an exhibition come from? For this museum, the answer to this question is twofold: the particular strengths of our collections, and the interests and expertise of our staff. In the case of this exhibition, three additional factors provided the inspiration.

First was the opportunity to give credit to some of the people whose work has made possible our understanding of the Paleo Indian period in New England. This includes avocational archaeologists such as "The Bull Brook Boys"—Bill Eldridge, Tony Orsini, the Vaccaro brothers: Joe, Tony, Nick and Frank—the discoverers and recorders of the Bull Brook site, and the late Fred Carty and his uncle Stanley Buzarewicz, who discovered and excavated much of the Neponset site. Equally important is the excellent, but often overlooked, work done by archaeologists in cultural resource management firms. The contributions of Rick Will and Deborah Wilson (Archaeological Research Consultants, Inc., Ellsworth, Maine) on the Nicholas site, and Duncan Ritchie (The Public Archaeology Lab, Inc., Pawtucket, Rhode Island) on the Neponset site, have been essential to the success of this project. Without the effort of all these people, it would be impossible to tell the story of New England's Paleo Indians.

Second was the astounding amount of new information that has recently become available. It was less than fifty years ago that the "Bull Brook Boys" demonstrated, for the first time, that Paleo Indian sites did exist in New England. By the 1970s perhaps another half dozen sites had been found. Within the last ten years, the number of Paleo Indians sites in New England has grown exponentially. This seemed an appropriate time to assess what we've learned.

Many friends and colleagues helped in this effort by sharing their own information. Among them are: Richard Boisvert, New Hampshire State Historical Preservation Office; Stephen Cox, Maine State Museum; Dena Dincauze, University of Massachusetts, Amherst; George Hamell, New York State Museum; Nathan Hamilton, University of Southern Maine; Brian Jones, University of Connecticut; Jim Petersen, University of Maine, Farmington; Jim Richardson, Carnegie Museum of National History, Pittsburgh; Brona Simon, Massachusetts Historical Commission; Peter Stork, Royal Ontario Museum, Toronto; and Peter Thomas, University of Vermont. Thanks to all for their generosity.

Third, since the primary mission of this museum is education, the story of New England's Paleo Indians provides a wonderful opportunity to explain to students how the science of archaeology works. Good science is interdisciplinary and so was the team that put this exhibition together. In addition to archaeologists, members included: flint knapper Jeff Boudreau; graphic artist Ken Citron; graphic designer Nancy Phillips; illustrators Sara Germain, Ed Moore and Bill Parsons; geologist Stephen Pollock, University of Southern Maine; and, of course, the museum staff.

Finally, particular credit and thanks go to the exhibition's two guest curators: Paige Newby, Department of Geological Sciences, Brown University, and Arthur E. Spiess, staff archaeologist at the Maine Historic Preservation Commission.

James W. Bradley, *Director*
Robert S. Peabody Museum of Archaeology

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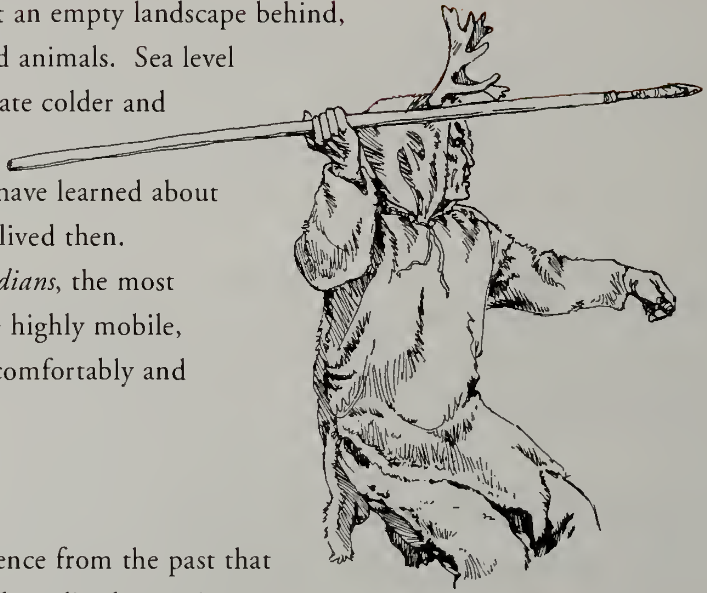
A WORLD OF CHANGE

The New England we see around us today was very different 13,000 years ago. The glaciers of the Ice Age left an empty landscape behind, one that gradually refilled with plants and animals. Sea level was dramatically lower then and the climate colder and more variable.

This is a story that explores what we have learned about that time and place, and the people who lived then. Archaeologists believe that these *Paleo Indians*, the most ancient inhabitants of the Americas, were highly mobile, family-sized bands of hunters who lived comfortably and efficiently in a rapidly changing world.



Paleo Indian caribou hunter
Pen and ink drawing by Ivan Kocsis
Courtesy of the Royal Ontario Museum, Toronto, Canada

Understanding the Past

Archaeology is the study of material evidence from the past that gives us an understanding of how people have lived over time. Archaeologists use scientific methods to find, describe and interpret this evidence. Studying artifacts, reconstructing past environments and finding patterns in human behavior are basic to this work.

All materials decay over time. The further back in time we look, the harder it is to find evidence. Because Paleo Indians lived so long ago, we have limited information to understand them and their world. Reconstructing the story of Paleo Indians is like putting together a puzzle with many pieces missing. In recent years, new pieces have been added to our picture of New England between 13,000 and 11,000 years ago.

Building a Tool Kit

Archaeologists use many kinds of tools to learn about past people, their culture and their environment. These include tools for description and tools for interpretation.

Tools **for description** measure and compare evidence. These tools answer questions of Where? When? Who? and What?

Tools **for interpretation** examine relationships, patterns and changes. These tools answer questions of How? and Why?

Tools for Description

Where?

Even the shape of New England was different 13,000 years ago. As the glaciers retreated, they left large lakes and an inland sea behind. Since sea level was as much as 150 feet lower than it is now, more of the continental shelf was exposed, especially around what are now Long Island, Cape Cod and Georges Bank.

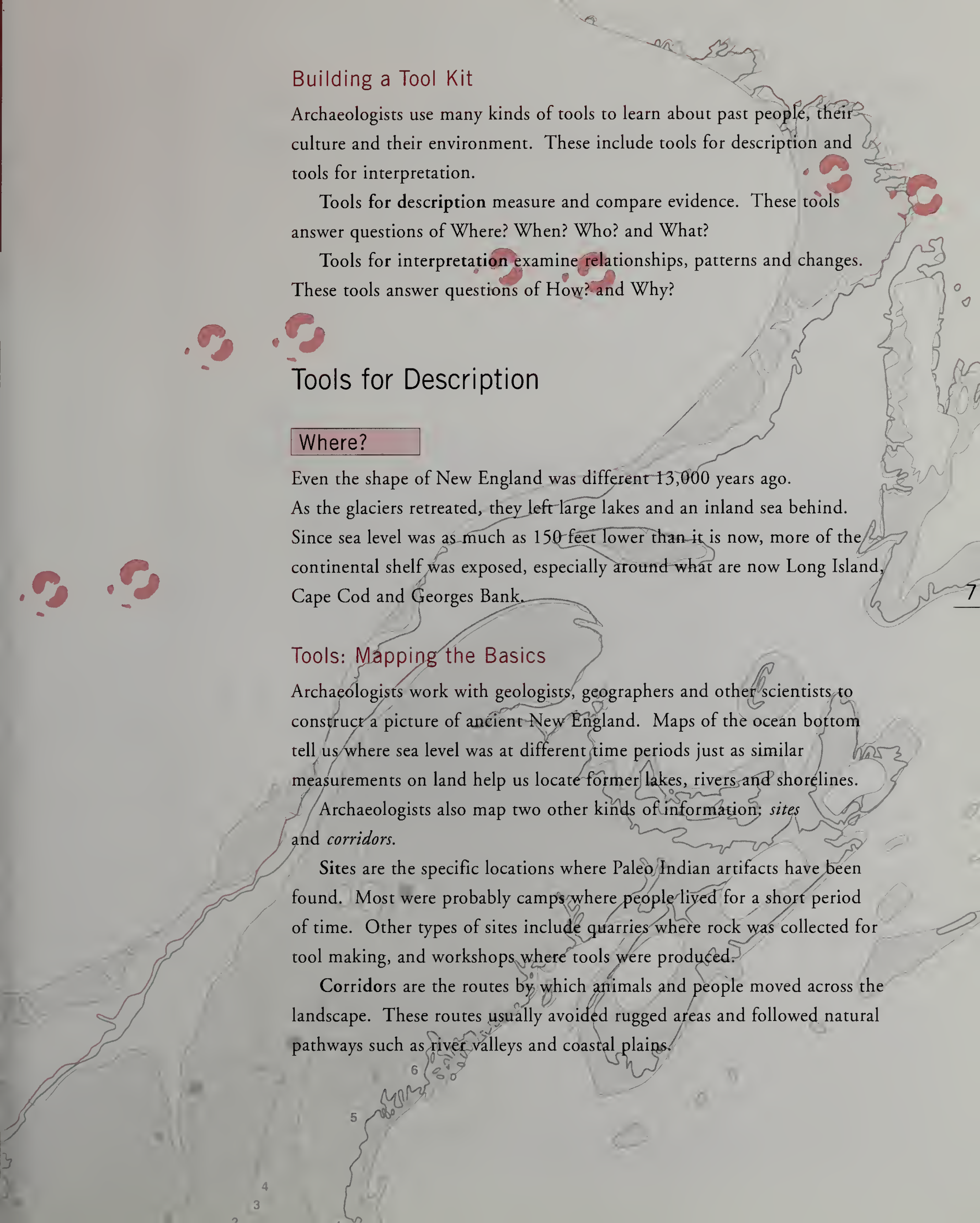
Tools: Mapping the Basics

Archaeologists work with geologists, geographers and other scientists to construct a picture of ancient New England. Maps of the ocean bottom tell us where sea level was at different time periods just as similar measurements on land help us locate former lakes, rivers and shorelines.

Archaeologists also map two other kinds of information: *sites* and *corridors.*

Sites are the specific locations where Paleo Indian artifacts have been found. Most were probably camps where people lived for a short period of time. Other types of sites include quarries where rock was collected for tool making, and workshops where tools were produced.

Corridors are the routes by which animals and people moved across the landscape. These routes usually avoided rugged areas and followed natural pathways such as river valleys and coastal plains.



When?

The Paleo Indian period occurred between 13,000 and 11,000 years ago. This was a time of great environmental change—the transition from the last Ice Age (or Pleistocene era) to the Modern (or Holocene) era. To measure such distant periods of time, archaeologists developed special tools. One of the most useful is radiocarbon dating.

Tools: Radiocarbon Dating

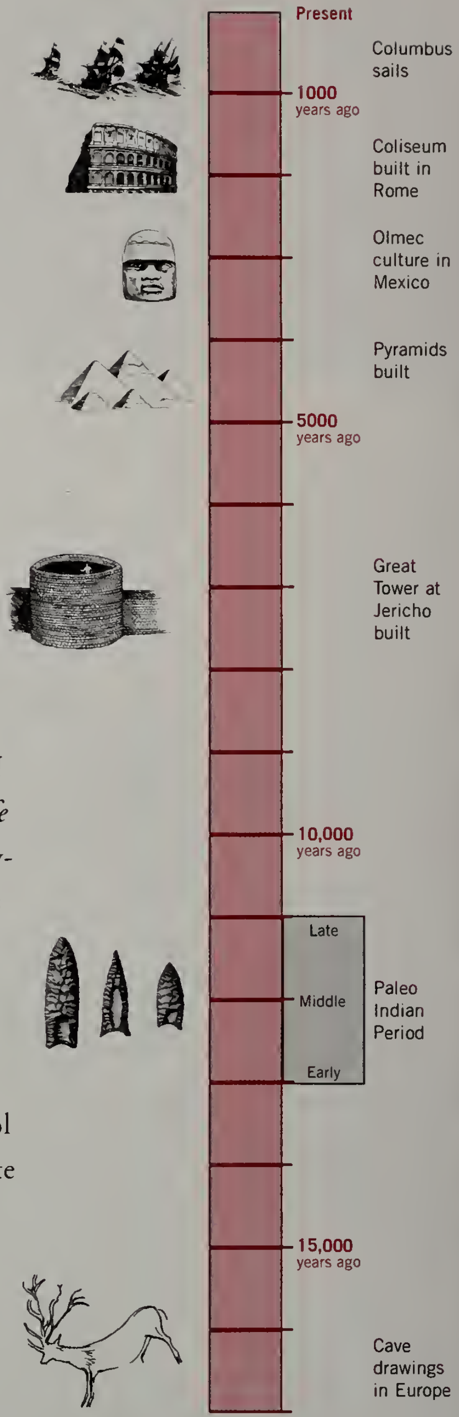
While elements such as carbon and uranium always have the same number of protons in their nucleus, the number of neutrons can vary. These various forms of an element are called *isotopes*. For example, the most familiar form of carbon (written ^{12}C) has six protons and six neutrons; the isotope Carbon 14 (^{14}C) has six protons and eight neutrons.

An unstable isotope will change to a more stable form or even into another element. Carbon 14 is an unstable isotope that decays into Nitrogen 14 (^{14}N) at a fixed rate; half of any ^{14}C sample will become ^{14}N in a period of 5,730 years. This rate of radioactive decay is called a *half-life* and serves as a natural clock archaeologists use to measure the past. All living plants, animals and people absorb ^{14}C from the environment. For this reason, only organic materials, those derived from living organisms, can be ^{14}C dated. Wood, charcoal, bone and shell are among the materials most frequently used. Radiocarbon dates are calculated and reported in years Before Present, or B.P. By standard definition, the "present" is 1950.

Much of the development of ^{14}C dating as a useful archaeological tool occurred at the Robert S. Peabody Museum of Archaeology during the late 1940s and early 1950s through the collaboration of Willard Libby, the discoverer, and Frederick Johnson, the museum's curator.

Who?

Archaeologists believe Paleo Indians were the first people in New England. Who were they and where did they come from? Until recently, most archaeologists have thought that the earliest Americans came from Asia across the Bering Strait near the end of the last Ice Age between 15,000 and 12,000 years ago. Recent findings throughout the Americas suggest that the story is more complex, and that people may have arrived in successive migrations, some thousands of years earlier.



This timeline shows selected events over the past 17,000 years. It is difficult to grasp such a vast span of time. One way to do this is through comparison with human generations. Every 20 years, a new generation is born and grows old enough to have children. This means five generations occur in a century, 50 each millennium. By this reckoning, the Paleo Indian period was between 650 and 550 human generations ago.

WHAT IS CALIBRATION AND WHY IS IT IMPORTANT?

Radiocarbon dates measure radiocarbon years, **not** calendar years. In addition, because the amount of ^{14}C in the environment has varied slightly over time, these variations are also reflected in radiocarbon dates.

To correct this problem, archaeologists use other age measurements, such as the dates derived from tree rings, to estimate past changes in ^{14}C levels, and to *calibrate*, or adjust, radiocarbon years into calendar years.

The difference can be significant. For example, ^{14}C dates indicate that the Paleo Indian period in New England was about 1,000 years long, from 11,000 to 10,000 B.P. or radiocarbon years ago. When these dates are calibrated, two things happen. The Paleo Indian period becomes older and its length nearly doubles, from 13,000 to 11,000 calendar years ago.

Finding the People

In New England, only a few Paleo Indian sites are known. Stone tools are the most common artifacts found; little else survives for long in the region's acidic soils. It is a challenge to reconstruct the Paleo Indian story from such limited evidence.

One way archaeologists try to understand people in the distant past is by making comparisons with more recent people who lived in similar environments. This is called *ethnographic analogy*. Most reconstructions of Paleo Indian life, including many of the illustrations in this catalog, rely on this technique.

An Innu summer camp. "Tshinutivish at Indian House Lake on the George River, interior Quebec-Labrador, 9 August 1910." Photograph by William Brooks Cabot. © William Brooks Cabot collection, National Anthropological Archives, National Museum of Natural History, Smithsonian Institution.

What?

Archaeological study often focuses on *artifacts*, the objects that people made, used and left behind. The best known artifacts of Paleo Indians are a distinctive style of tool: finely made spear points used for hunting and butchering large animals. Since these specialized points have a flute or channel on each side, they are called *fluted points*.

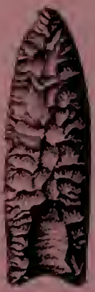
Tools: Defining Style, or What's the Point?

Paleo Indians in New England used at least three distinct styles of fluted points. These styles are named after the sites where they were found. Even among these highly specialized tools, there is considerable variability.

By describing these styles in detail, archaeologists can compare the points from different sites. This provides a means for assessing which may belong to the same time period (Early, Middle or Late) as well as understanding other changes that occurred in Paleo Indian culture.

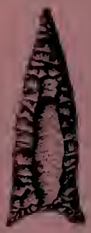
Bull Brook style, or Early Paleo Indian, fluted point

Size	large: 6–8 cm in length
Shape	parallel sided, widest at the base
Fluting	only 1/2 to 1/3 the length
Finish	lateral grinding on lower 1/3 of length



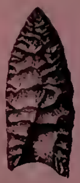
Neponset style, or Middle Paleo Indian, fluted point

Size	medium: average 6 cm in length
Shape	slightly constricting toward the base with flared ears
Fluting	more than 1/2 and often the entire length
Finish	lateral grinding between midsection and ears



Nicholas style, or Late Paleo Indian, fluted point

Size	medium to small: less than 6 cm in length
Shape	slightly tapered toward the base, widest at midsection
Fluting	minimal
Finish	lateral grinding from midsection to base



BULL BROOK: An Early Paleo Indian Site

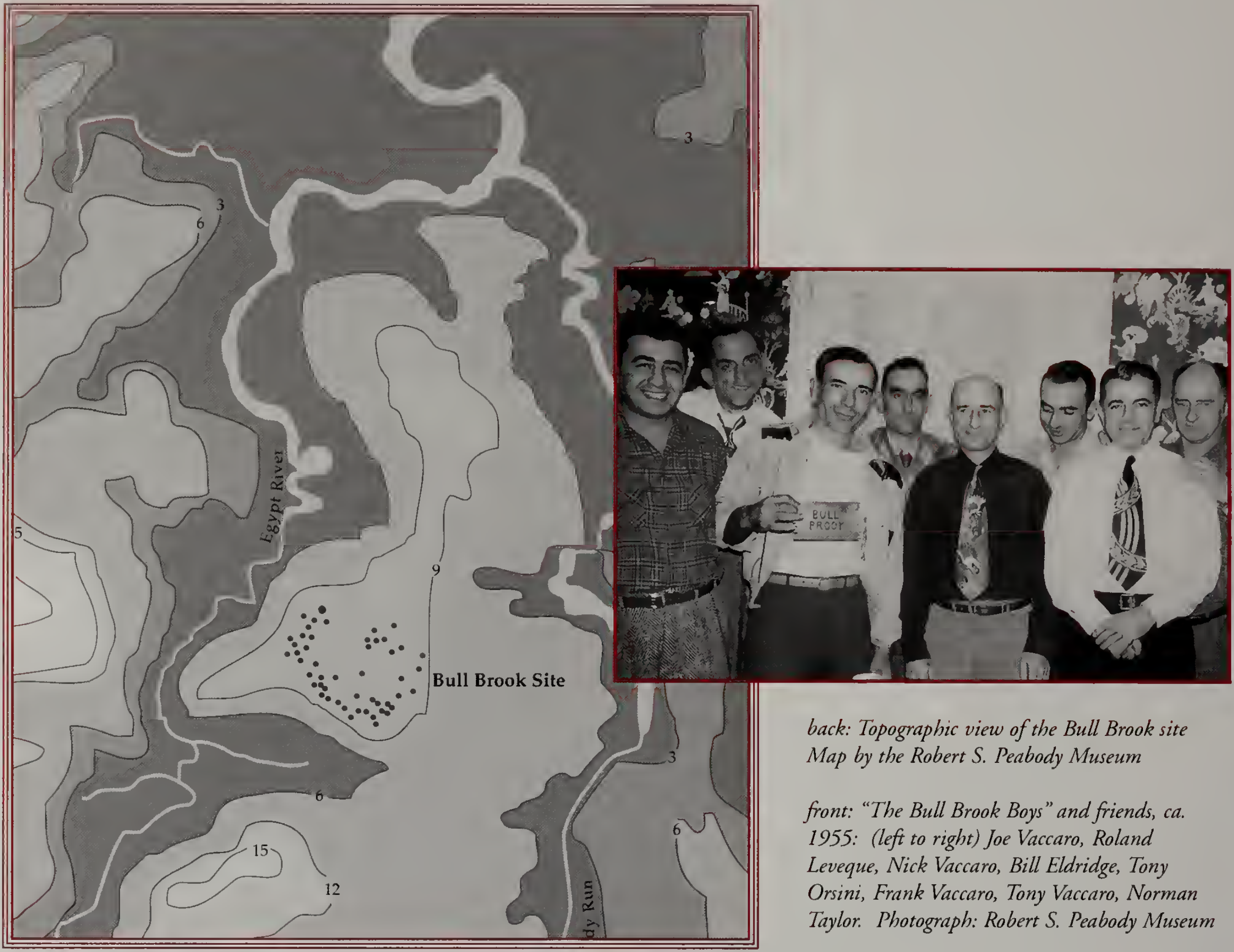
Bull Brook is the largest Paleo Indian site in New England and possibly in North America. While exact dates for this site have not been determined, Paleo Indians probably lived here about 12,700 years ago.

The Bull Brook site, in Ipswich, Massachusetts, was discovered in spring 1951 by Bill Eldridge and Joe Vaccaro. Already known as a site where arrowheads and pottery could be found, it revealed its Paleo Indian component during commercial sand removal. With the assistance of Douglas Byers, director of the Robert S. Peabody Museum, a group of amateur archaeologists who became known as "The Bull Brook Boys" spent the next ten years collecting and recording information until the site was destroyed.

Why Were They Here?

The size of Bull Brook has been the source of much interest. With at least 42 distinct *loci*, or activity areas, Bull Brook is four times larger than the next biggest Paleo Indian site in New England. It may have been a base camp for Paleo Indians migrating into the region, or a communal camp where Paleo Indians gathered to hunt caribou and other large animals. Caribou and beaver bones have been found at Bull Brook.

The stone used to make the tools found at Bull Brook is also significant. Several kinds were used and nearly all come from distant sources. These include northern Maine, New Hampshire and Vermont as well as New York and Pennsylvania. This evidence indicates that Paleo Indians traveled extensively and knew New England's resources very well. The recovery of partially completed pieces and of flakes suggests that most fluted points were made on the site, not brought in from somewhere else.



back: Topographic view of the Bull Brook site Map by the Robert S. Peabody Museum

front: "The Bull Brook Boys" and friends, ca. 1955: (left to right) Joe Vaccaro, Roland Leveque, Nick Vaccaro, Bill Eldridge, Tony Orsini, Frank Vaccaro, Tony Vaccaro, Norman Taylor. Photograph: Robert S. Peabody Museum

Finding the People: Hunters and Hunting

Bull Brook also provides evidence for the sophistication of these ancient hunters, especially in their understanding of the environment and its resources. While caribou, mammoth and other large mammals may have provided most of the meat and hides used by Paleo Indians, many other kinds of animals were hunted. These probably included small mammals—beaver, hare and fox—as well as birds and fish. To succeed in hunting such diverse game, Paleo Indians needed a wide selection of tools and techniques.

For caribou and other large animals, Bull Brook phase hunters probably used a range of spears including lightweight killing lances with bone or ivory points, heavy thrusting spears with a fluted point on a detachable foreshaft, and lightweight throwing spears tipped with a fluted point and thrown with an atlatl.

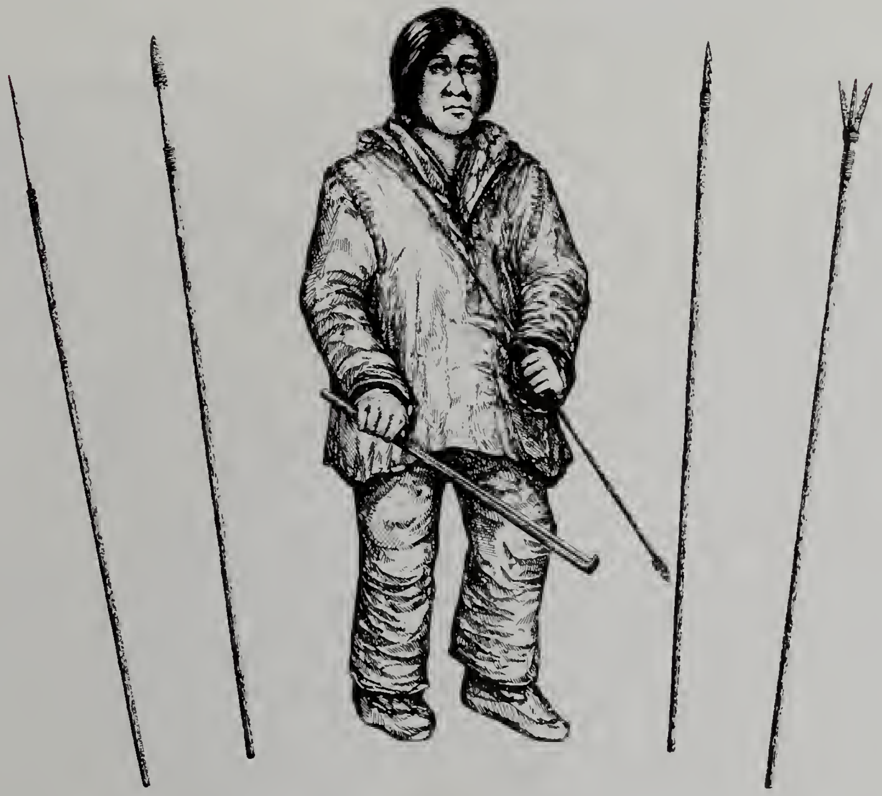
DID THEY HUNT MASTODONS?

Mastodon remains are known from the New England/ Maritime region. Recent discoveries have been made in Massachusetts, New Hampshire and Maine as well as offshore. Although there is no direct evidence for mastodon hunting in New England, Paleo Indian sites in nearby New York State have produced mastodon remains as well as tools made from their ivory and bone.

In New England, Mastodon remains are often found in ponds. In the upper Midwest, it has been demonstrated that Paleo Indians often butchered mastodons, then cached or stored the meat in ponds over the winter. This practice may have occurred in New England as well.

For hunting smaller game such as beaver, fish or birds, there were also several choices. These included barbed bone or antler harpoons and three-pronged leisters made of bone or antler as well as wooden clubs, throwing sticks and nets.

One device Paleo Indian hunters probably used was an *atlatl* or spear thrower. The most common form of atlatl was a piece of wood the length of a human forearm with a grip on one end and a hook at the other. By extending the thrust of the arm, an atlatl can throw a spear with ten times more force than an unaided human arm.



Paleo Indian hunter with hunting tools
Pen and ink drawing by Bill Parsons, 1997

On the left, hunting tools for mastodon, caribou, moose or other large animals. Left to right: a light killing lance with bone or ivory point; heavy thrusting spear with fluted point on detachable foreshaft. Held by hunter: light throwing spear tipped with fluted point, thrown with atlatl.

On the right, hunting tools for small game such as beaver, birds and fish. Left to right: unilaterally barbed bone or antler harpoon; three-pronged leister made of bone or antler. Not shown: wooden clubs and throwing sticks, bone or antler daggers.

BULL BROOK: Profile of an Early Paleo Indian site

When?

Reported dates: Several dates between 9,000 and 7,000 B.P., but none from the Paleo Indian period.

Estimated age: ca. 10,700 B.P. (or about 12,640 years ago).

Where?

Site location: Ipswich, Massachusetts. Located on a terrace (an old marine delta) overlooking riverine lowlands—now salt marsh—adjacent to Atlantic coast. (See site map on page 12.)

Site size: Large, at least 42 *loci* spread over eight hectares. These living areas appear to be organized in a circular pattern. Bull Brook is the largest Paleo Indian site known in the region. Smaller sites, such as Bull Brook II and Paisley Farm, are located nearby.

Time of year occupied: Previous interpretations have suggested a fall hunting camp or wintering site. Possibly a warm-weather camp given exposure to northwest, north and east winds.

What?

Style of fluted points: While a systematic study of Bull Brook fluted points has not been done, the majority appear to be large, parallel-sided points with short flutes and lateral grinding. Similar to Gainey-style points in the Great Lakes, these points have been termed "Bull Brook" style. There is considerable evidence for the making of fluted points as well as the resharpening of hafted points at the site.

Similar sites: DEDIC and Hanneman, Massachusetts; Whipple, New Hampshire (10,680 B.P.); Spiller, Point Sebago and Searsmont, Maine. (See map on page 15.)

Who?

Bull Brook may have been the temporary home for a large group of Paleo Indians who had migrated into the region from further west, and before they split up into smaller bands.

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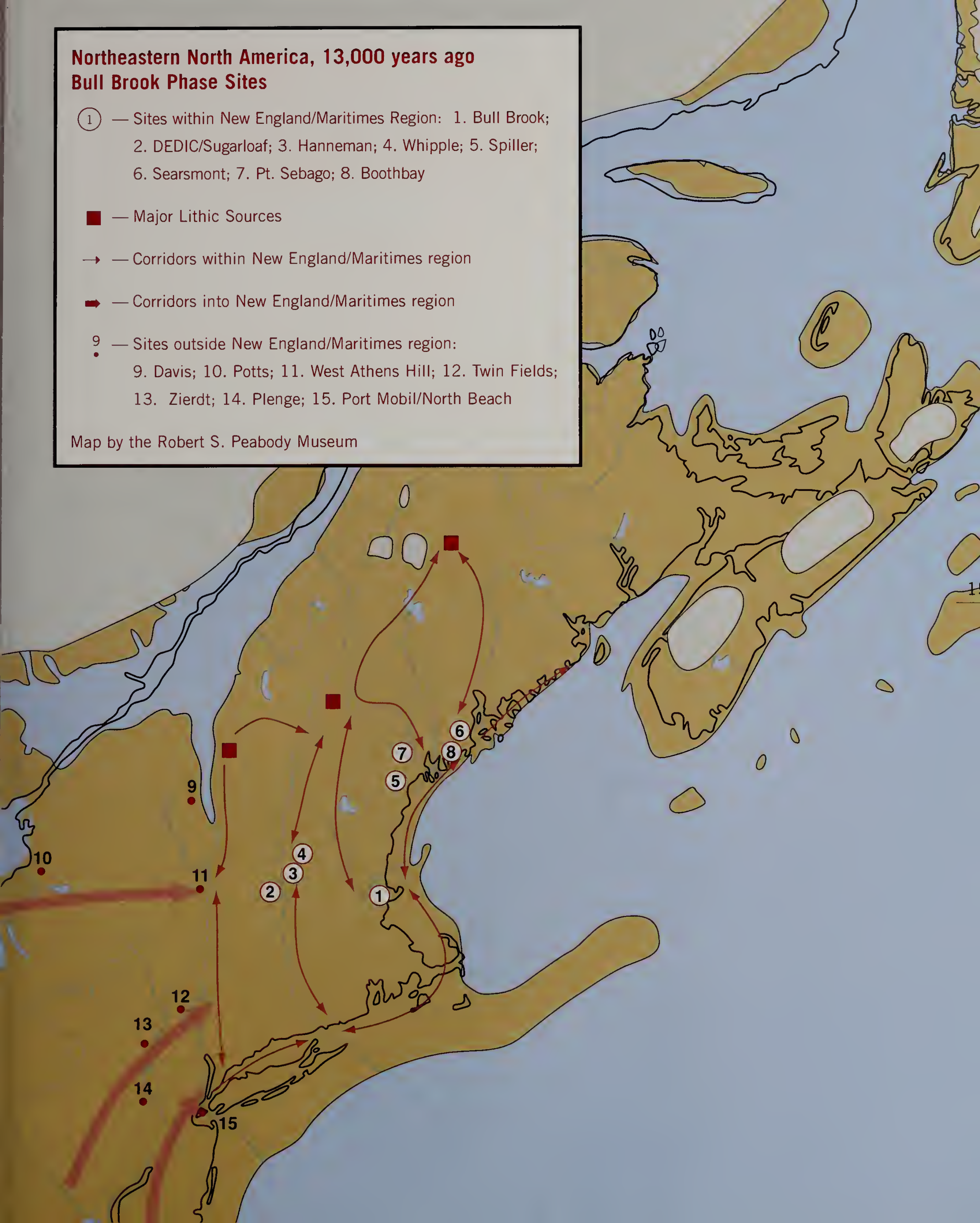


Northeastern North America, 13,000 years ago
Bull Brook Phase Sites

① — Sites within New England/Maritimes Region: 1. Bull Brook; 2. DEDIC/Sugarloaf; 3. Hanneman; 4. Whipple; 5. Spiller; 6. Searsmont; 7. Pt. Sebago; 8. Boothbay

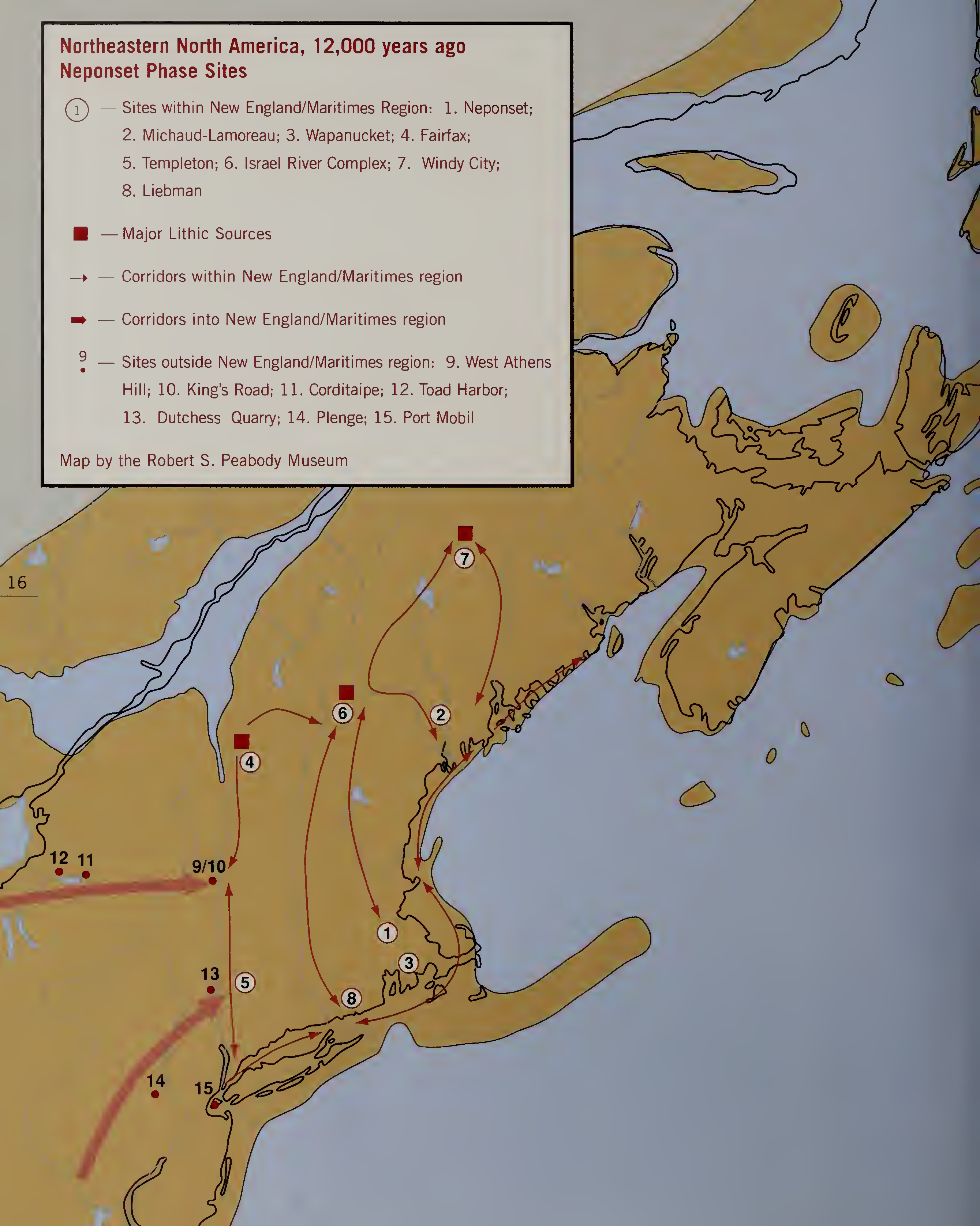
■ — Major Lithic Sources

→ — Corridors within New England/Maritimes region

➡ — Corridors into New England/Maritimes region

9 • — Sites outside New England/Maritimes region: 9. Davis; 10. Potts; 11. West Athens Hill; 12. Twin Fields; 13. Zierdt; 14. Plenge; 15. Port Mobil/North Beach

Map by the Robert S. Peabody Museum



Northeastern North America, 12,000 years ago
Neponset Phase Sites

① — Sites within New England/Maritimes Region: 1. Neponset; 2. Michaud-Lamoreau; 3. Wapanucket; 4. Fairfax; 5. Templeton; 6. Israel River Complex; 7. Windy City; 8. Liebman

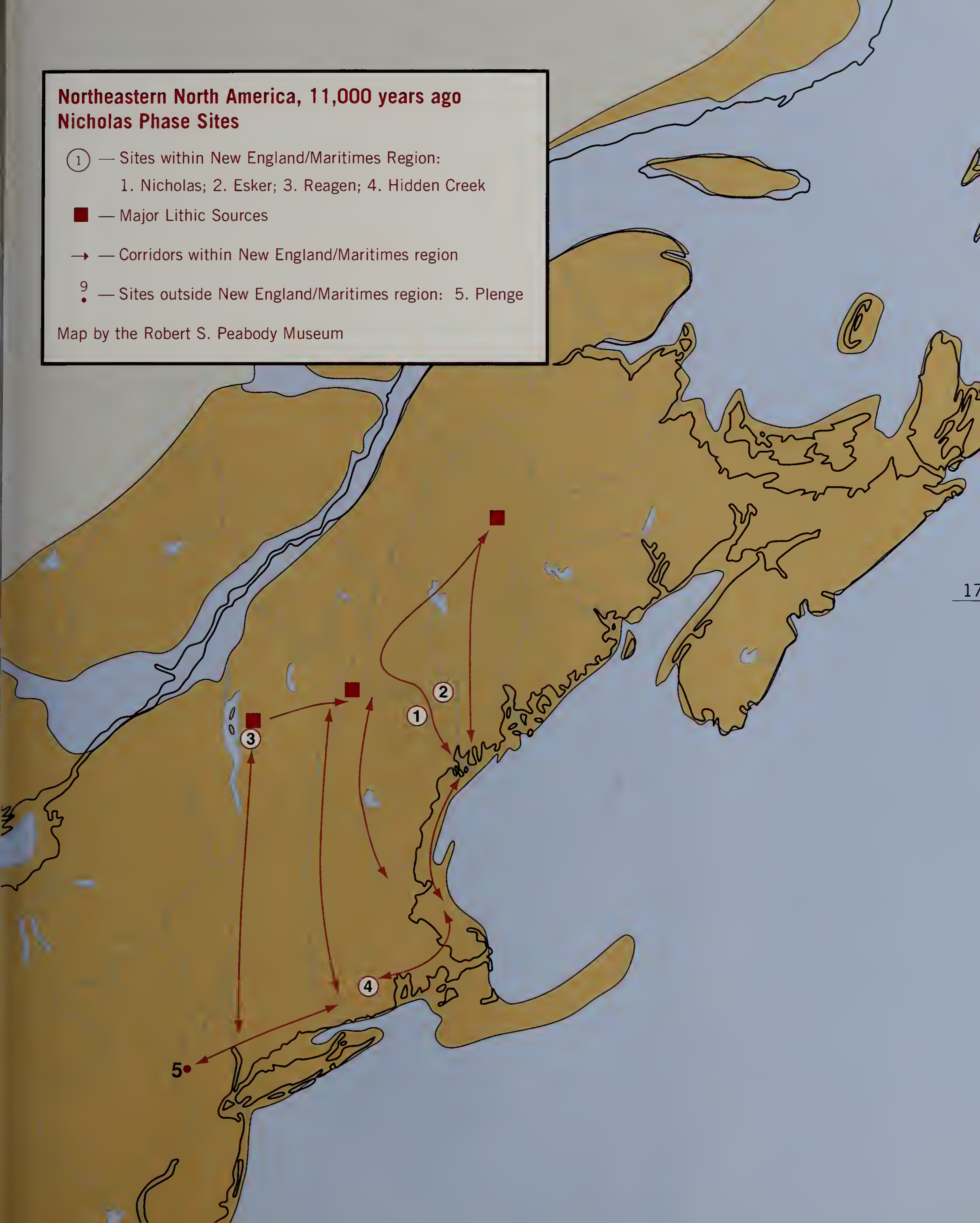
■ — Major Lithic Sources

→ — Corridors within New England/Maritimes region

➡ — Corridors into New England/Maritimes region

9 • — Sites outside New England/Maritimes region: 9. West Athens Hill; 10. King's Road; 11. Corditaipe; 12. Toad Harbor; 13. Dutchess Quarry; 14. Plenge; 15. Port Mobil

Map by the Robert S. Peabody Museum



Northeastern North America, 11,000 years ago
Nicholas Phase Sites

① — Sites within New England/Maritimes Region:
1. Nicholas; 2. Esker; 3. Reagen; 4. Hidden Creek

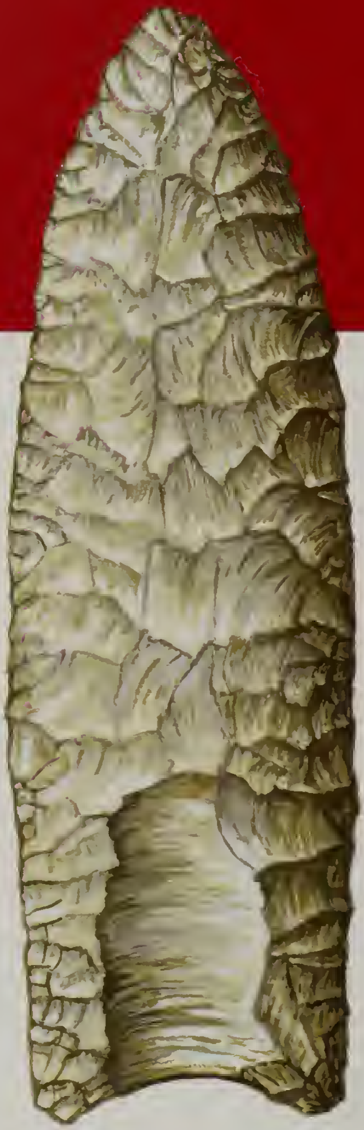
■ — Major Lithic Sources

→ — Corridors within New England/Maritimes region

9
● — Sites outside New England/Maritimes region: 5. Plenge

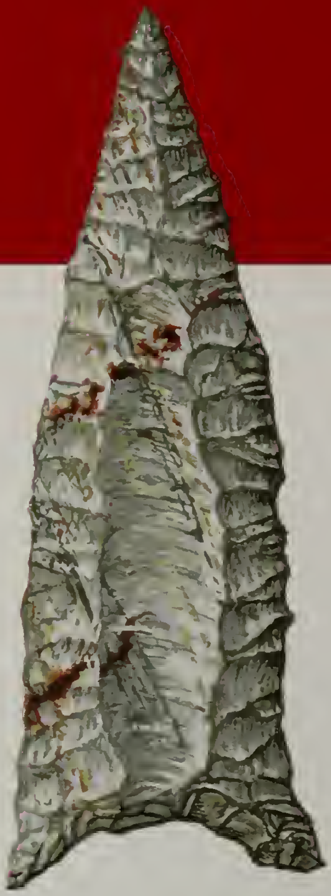
Map by the Robert S. Peabody Museum

New England Paleo Indian Fluted Point Styles



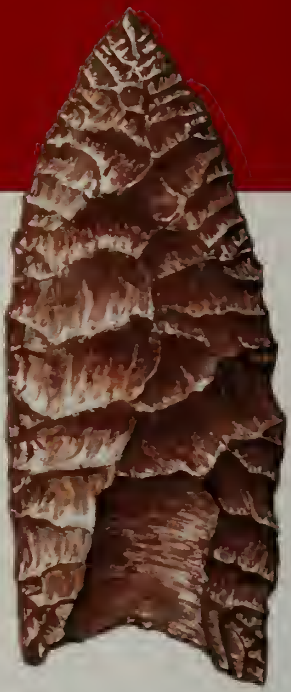
BULL BROOK STYLE:

An Early Paleo Indian fluted point. This example is made of the gray blue chert from the Hathaway Formation in northern Vermont.



NEPONSET STYLE:

A Middle Paleo Indian fluted point. This example is made of the flow-banded rhyolite found near Berlin, New Hampshire.



NICHOLAS STYLE:

A Late Paleo Indian fluted point. This example is made of the dark red chert from the Munsungan Lake area in northern Maine.

Paleo Indian fluted point styles
Ink and water color by Bill Parsons, 1997

Caribou tracks from A Field Guide to Animal Tracks, *Copyright 1950 by Olaus J. Murie; copyright 1974 by Margaret E. Murie. Reprinted by permission of Houghton Mifflin Co. All rights reserved.*

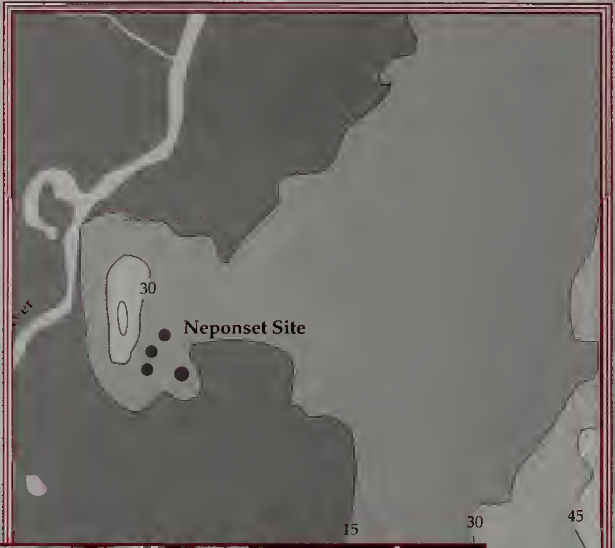
Paleo Indian caribou hunter
Pen and ink drawing by Ivan Kocsis
Courtesy of the Royal Ontario Museum, Toronto, Canada

NEPONSET: A Middle Paleo Indian Site

Neponset is a small Paleo Indian site southwest of Boston. Radiocarbon dates indicate that Paleo Indians occupied this site 12,000 years ago. Unlike Bull Brook, Neponset is small and more typical of Paleo Indian sites in New England. Located near a former glacial lake, the site has three distinct *loci*, or activity areas, as well as evidence of others that were occupied either slightly earlier or later in time. This suggests that a group of Paleo Indians used the same area over two successive seasons.

Paleo Indian artifacts were first found at the Neponset site by Stanley Buzarewicz in the early 1970s after portions of the site were bulldozed for construction of Interstate 95. Between 1979 and 1982, Buzarewicz, Fred Carty and others excavated over 100 square meters, exposing four concentrations of Paleo Indian material.

In 1989, the Public Archaeology Lab, Inc., conducted excavations at locus D as part of a sewer realignment. Some additional work has been done since under the auspices of the South Shore Chapter of the Massachusetts Archaeological Society.



back: Topographic view of the Neponset site
Map by the Robert S. Peabody Museum

front: Fred Carty and Stanley Buzarewicz, ca. 1982
Photograph: Robert S. Peabody Museum

Why Were They Here?

Several factors made Neponset a desirable location. With its southern exposure and protection from prevailing northwest winds, this site would have been an excellent winter camp. Other reasons include the presence of fresh-water springs and vantage points for scouting out and intercepting caribou, moose and other game.

Paleo Indians may also have chosen this site because of the presence of hardwoods such as oak, ash and hornbeam. These dense, heavy woods were probably used to make a wide range of tools and utensils, including the hafts for fluted points.

above: Paleo Indians hafting fluted points
Pen and ink drawing by Ivan Kocsis
Courtesy of the Royal Ontario Museum, Toronto, Canada

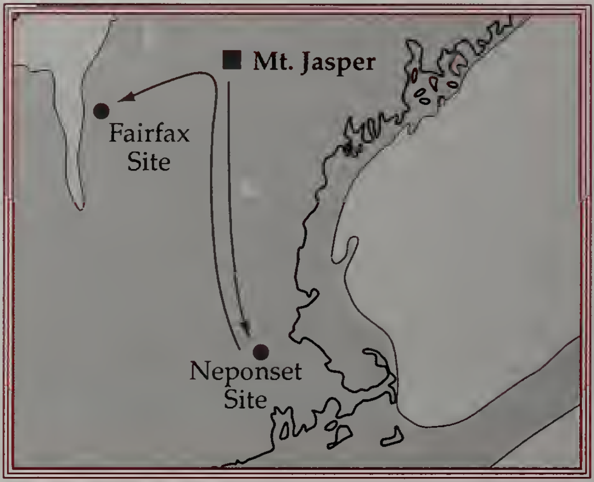
Finding the People: Passing on Knowledge

Miniature fluted points have been found at Neponset as well as at many other Paleo Indian sites. The majority are small yet fully functional points; other are just blanks that mimic the fluted point shape.

What do these artifacts tell us about the people who made and used them? Some archaeologists speculate that the functional pieces were made by adults to help children learn hunting skills. Others may have been a child's copy of an elder's hunting gear. It is also possible that miniature points had a magical or religious significance that we do not understand.

Where Did They Come From? Where Did They Go?

The evidence from Neponset also helps us reconstruct where this group of Paleo Indians had been before coming to the site, and where they may have gone afterward. Because of the flakes and incomplete pieces found, it is clear that making fluted points was an important activity at this site. Nearly all the stone used came from Mt. Jasper, New Hampshire, 320 kilometers (200 miles) away.



top: Paleo Indian man teaching a child to use a spear
Pen and ink drawing by Bill Parsons, 1997

bottom: Possible movement of Paleo Indians to and from the Neponset site. Map by the Robert S. Peabody Museum

Paleo Indians probably collected this material during warm weather, then followed the caribou herds south for the winter. Fluted points were finished and hafted in winter camp, and most were taken away when the band moved north the next spring. Several broken and discarded fluted points found at the Fairfax site in northern Vermont are identical to those from Neponset and hint at where this band may have gone next.

NEPONSET: Profile of a Middle Paleo Indian Site

When?

Reported dates: 10,210 B.P. (or about 12,000 years ago). Date on charcoal from Locus D, feature no. 3, a small hearth with wind-polished cobbles and chipping debris (Ritchie 1994).

Where?

Site location: Canton, Massachusetts. Located on the sandy shoreline of a partially drained glacial lake. (See site map on page 20.)

Site size: Small. Two occupation areas: one with three *loci*, a second with at least one locus 50m south. Most likely two sequential occupations. No similar sites currently known nearby.

Time of year occupied: Probably a cold-weather site. Faces south; protected on the northwest and east.

What?

Style of fluted points: Given the large number of channel flakes recovered (nearly 90) as well as incomplete, discarded pieces, it is clear fluted points were made at this site. Although of varying lengths, these points are quite uniform in style. They constrict slightly toward the base, have flared ears, and are fluted more than halfway up their length. These points are similar to Barnes-style points in the Great Lakes.

Similar sites: Michaud/Lamoreau, Maine (10,200 B.P.); Templeton, Connecticut (10,190 B.P.); Wapanucket, Massachusetts; Fairfax, Vermont; Israel River, New Hampshire. (See map on page 16.)

Who?

The Neponset site appears to have been a winter camp and meeting place used by a particular group of Paleo Indians, probably over several seasons.

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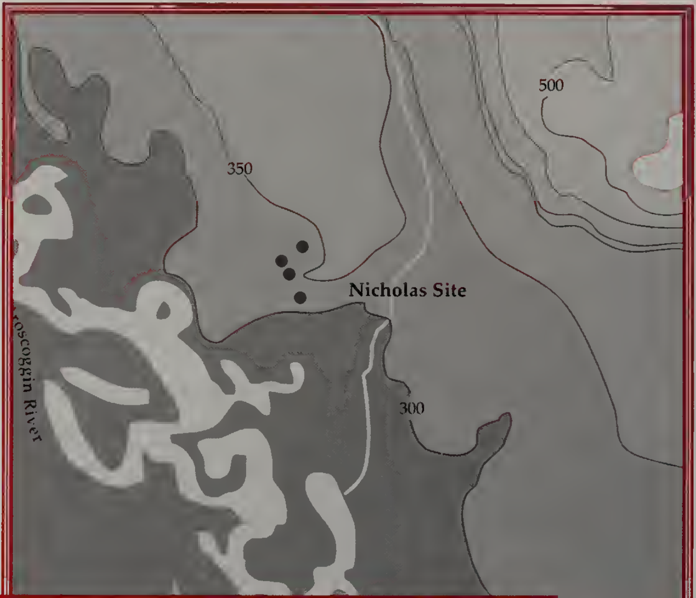
NICHOLAS: A Late Paleo Indian Site

Nicholas is a small Paleo Indian site in western Maine, probably occupied around 11,600 years ago. Possibly a late-season hunting camp, the Nicholas site appears to represent the final phase of Paleo Indians in New England.

The Nicholas site was discovered in 1993 during archaeological testing on a parcel of land designated for construction of a new WalMart store. Excavations were carried out during that fall under the direction of Richard Will and Deborah Wilson. Final fieldwork was completed in spring 1994 with over 250 square meters excavated.

Nicholas, like Neponset, is a small site but one that was occupied only briefly. Located on a west-facing river terrace overlooking a wide valley, the site has four loci, or activity areas. Nicholas appears to have been a short-term hunting camp where a band of Paleo Indians stopped to replenish their tools, and perhaps hunt some particular game, before moving on. Short-term occupations, such as the Nicholas site, leave little archaeological evidence behind. As a result, they are found less often than sites such as Bull Brook or Neponset, where the archaeological record is richer.



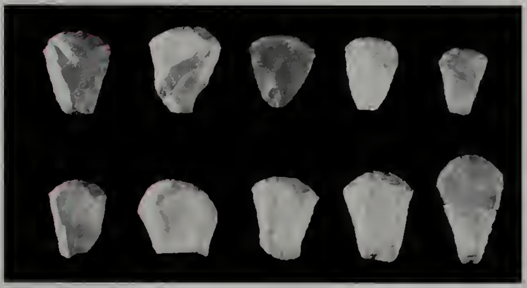
back: Topographic view of the Nicholas site
Map by the Robert S. Peabody Museum
Information provided by Richard Will and Deborah Wilson

front: Excavation at the Nicholas site
Photograph courtesy of Richard Will and Deborah Wilson

Finding the People: Domestic Tasks and Tools

Paleo Indian sites produce artifacts other than fluted points and hunting gear. A wide range of domestic tools such as knives, scrapers and drills were used for butchering and preparing food, making tent coverings and clothes, and producing utensils of bone, antler and wood. Since only the stone tools survive, our understanding of this aspect of Paleo Indian life is based on conjecture as well as evidence from sites in other parts of North America.

We do not have a clear understanding of gender roles in Paleo Indian life. While we do not know specifically which tasks were done by men and which by women, it is likely everyone in the band learned the essential skills and was capable of doing whatever work needed to be done.



top: Paleo Indian domestic scene. Some of the women are using scrapers to process hides.
Pen and ink drawing by Ivan Kocsis
Courtesy of the Royal Ontario Museum, Toronto, Canada

bottom: Unifacial scrapers from the Nicholas site. These tools were used for processing hides and making other implements from bone, antler and wood.
Photograph courtesy of Richard Will and Deborah Wilson

NICHOLAS: Profile of a Late Paleo Indian Site

When?

Reported dates: None.

Estimated age: 10,100 B.P. (or about 11,675 years ago).

Where?

Site location: Oxford, Maine. Located on the west-facing terrace of a wide valley, overlooking what was an actively down-cutting river. (See site map on page 24.)

Site size: Small. One occupation area with four *loci*. No similar sites known nearby.

Time of year occupied: A fall hunting camp. Site is exposed to west and northwest winds; protected to the east; *loci* are in an arc facing east.

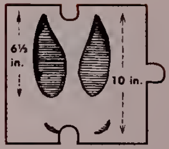
What?

Style of fluted points: Six whole or partially finished points were recovered. These are medium to small points with parallel or slightly tapered sides and a concave base. While most were basal thinned, there is little evidence of fluting. These points are similar to the Holcombe points found in the Great Lakes region.

Similar sites: Esker, Maine (10,110 B.P.); Reagen, Vermont; Hidden Creek, Connecticut. (See map on page 17.)

Who?

The Nicholas site appears to have been a short-term stopping place, perhaps a hunting camp, used by a band of Paleo Indians as they moved south toward their traditional wintering grounds.



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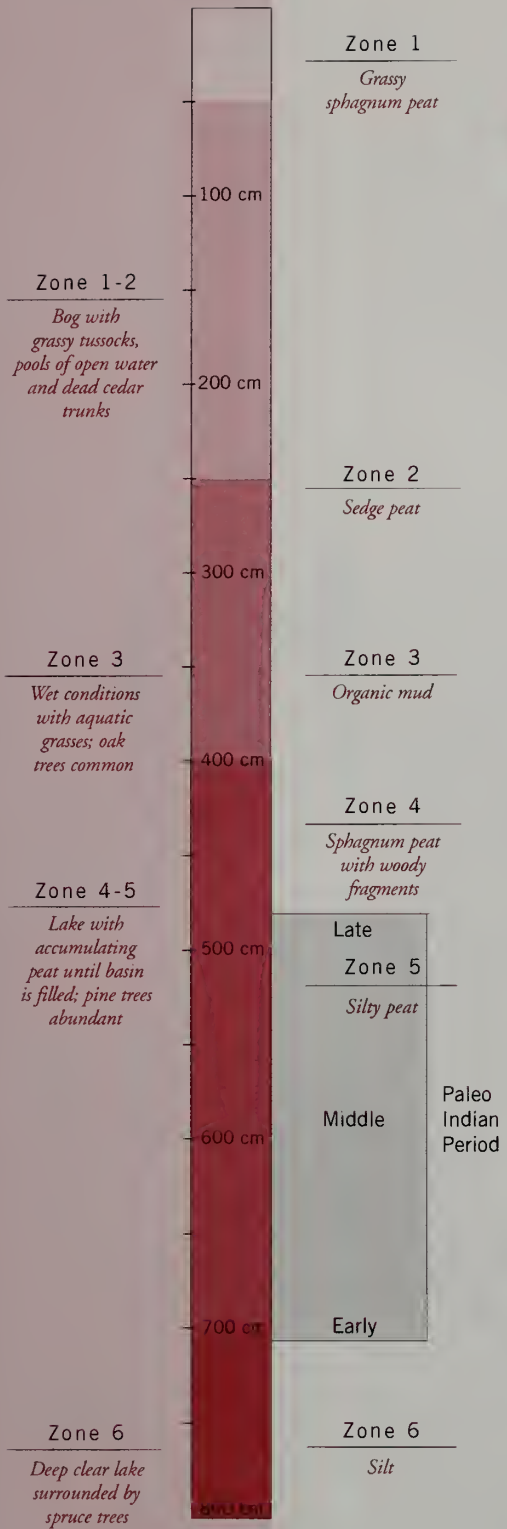

Zone 1
Grassy sphagnum peat
100 cm
Zone 1-2
Bog with grassy tussocks, pools of open water and dead cedar trunks
200 cm
Zone 2
Sedge peat
300 cm
Zone 3
Wet conditions with aquatic grasses; oak trees common
Zone 3
Organic mud
400 cm
Zone 4
Sphagnum peat with woody fragments
Zone 4-5
Lake with accumulating peat until basin is filled; pine trees abundant
Late
500 cm
Zone 5
Silty peat
Middle
Paleo Indian Period
600 cm
700 cm
Early
Zone 6
Deep clear lake surrounded by spruce trees
Zone 6
Silt
800 cm

Reconstruction of a pollen core from southeast Massachusetts. The original core was 8 meters (26.25 feet) long. Courtesy of Paige Newby, Department of Geological Sciences, Brown University

Tools for Interpretation

How?

Archaeologists often work with other scientists to interpret evidence. Following are two examples. The first explores how we reconstruct past environments; the second examines the kinds of stone used by Paleo Indians for tools and what this tells us about how they lived.

Tools: Plants and Pollen

Just as the shape of New England was different 13,000 years ago, so were the plants and animals that filled the landscape after the glaciers retreated. A specialized way to reconstruct these past landscapes is through *palynology*, or pollen analysis.

Most plants produce enormous amounts of pollen, some of which is blown into and preserved in a region's bogs and lakes. Palynologists collect samples of the sediments that accumulate in these wetlands with coring equipment. Microscopic pollen grain from the sequential layers of the core are then extracted, analyzed and identified in a laboratory. Often the sediments collected can also be ^{14}C dated. Together, pollen analysis and dated sediments allow us to reconstruct vegetation patterns over time.

Paige Newby (right picture, on left) and students taking pollen core samples from a pond on Cape Cod.

What Was the Younger Dryas?

The Younger Dryas was an interval of abrupt cooling that occurred between 13,000 and 11,000 years ago. This return to cold conditions is documented in cores from the Greenland glaciers and the North Atlantic ocean as well as pollen stratigraphies. The interruption in climatic warming in turn affected patterns of regional vegetation. Since the arrival of Paleo Indians in New England occurred during this period, archaeologists are particularly interested in how the changing environment may have affected these people.

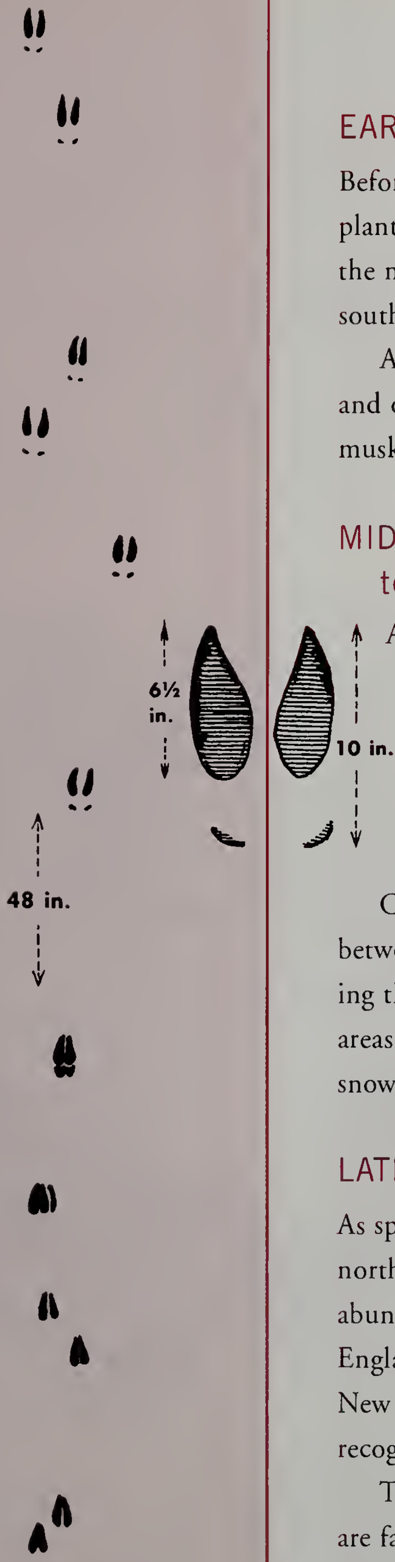
What About Animals?

Not surprisingly, different plant communities, whether open tundra or forest, support different animal communities. The kinds of animals in New England would have been of great importance to Paleo Indians since they provided not only food, but hides and furs for clothing and shelter, as well as bone, antler and sinew for tools. Although little direct evidence of the animals hunted by Paleo Indians survives on archaeological sites, fossil remains of animals have often been found in New England. These, plus evidence from other parts of North America during the same time period, allow us to reconstruct animal communities.

Recent studies show that between 14,000 and 10,000 years ago, North America's climate and vegetation underwent massive changes. By looking at three points in time, Early, Middle and Late in the Paleo Indian period, we can see different phases of this change.

top: Black spruce (Picea mariana)

bottom: Caribou (Rangifer tarandus) crossing river
Pen and ink drawing by Ivan Kocsis
Courtesy of the Royal Ontario Museum, Toronto, Canada


6½ in.
10 in.
48 in.

Moose tracks from A Field Guide to Animal Tracks, *Copyright 1950 by Olaus J. Murie; copyright 1974 by Margaret E. Murie. Reprinted by permission of Houghton Mifflin Co. All rights reserved.*

EARLY (13,000 years ago): cold, glacial conditions

Before 13,000 years ago, spruce and sedge were the most widespread plants in New England. After 13,000 years ago, the addition of birch in the northern part of the region suggests a more open landscape. Further south, spruce was more abundant, indicating more forested conditions.

Animals present in this landscape included mammoths, mastodons and other now-extinct species as well as cold-adapted animals such as musk ox, caribou, Arctic fox, Arctic hare, grizzly bear and wolf.

MIDDLE (12,000 years ago): warmer, with a temporary return to cold conditions

Alder and birch became more widespread, while the range of spruce and sedge decreased. The temporary return of colder conditions resulted in an open Arctic-like landscape in eastern Maine and the Canadian Maritimes. This contrasts sharply with the southern part of New England, where a mixed forest of spruce, pine, birch and alder covered the landscape.

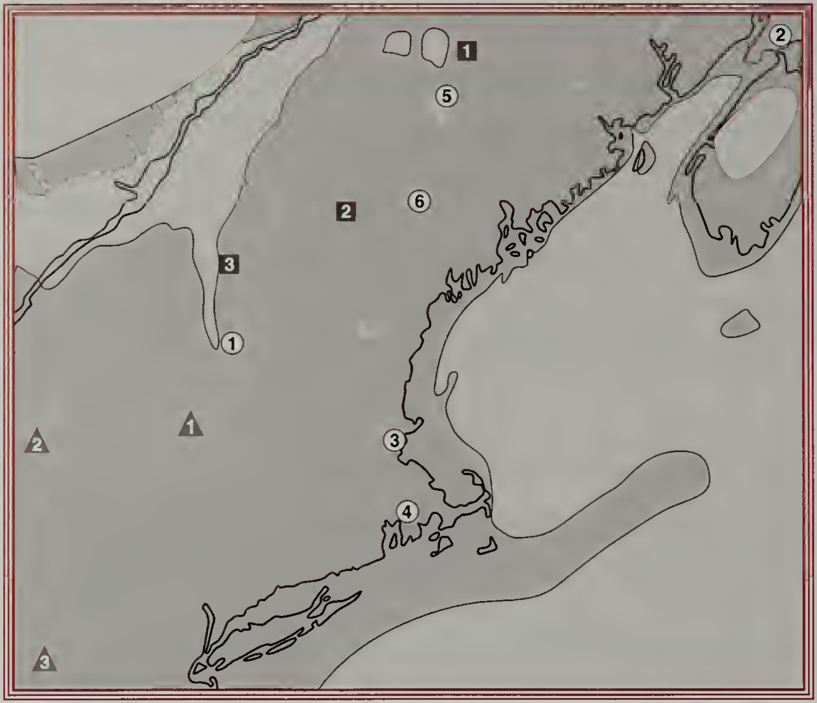
Caribou were one of the dominant species in this landscape, migrating between summer calving grounds in the north and the forested south during the winter. Other species present, especially in the more forested areas, included beaver, martin and other fur bearers, lynx and snowshoe hare.

LATE (11,000 years ago): continued warming

As spruce and sedge continued to decline and were restricted to the far north, pine and oak became dominant across the region. Pine was more abundant in the north and equally distributed with oaks in southern New England. This was the beginning of the New England forest we recognize today.

The animals in this landscape are familiar to us as well. These include moose, deer, black bear, bobcat, wild turkey, grouse and a wide range of small mammals, birds, reptiles and amphibians.

Oak (Quercus sp.)



Lithic sources used by Paleo Indians in the northeast

■ — Major lithic sources within New England/Maritimes region: 1. Munsungan chert; 2. Mt. Jasper rhyolite; 3. Hathaway chert

① — Minor lithic sources within New England/Maritimes region: 1. Ft.Ann/ Ticonderoga chert; 2. Debert chalcedony; 3. Saugus rhyolite; 4. Attleboro rhyolite; 5. Kineo rhyolite; 6. Crystal quartz

▲ — Major lithic sources outside New England/Maritimes region: 1. Hudson Valley chert; 2. Onondaga chert; 3. Pennsylvania chert

Map by the Robert S. Peabody Museum

Tools: Lithic Sourcing

In addition to providing evidence of style and use, stone artifacts help answer another important question: Where did Paleo Indians get the raw material for their tools?

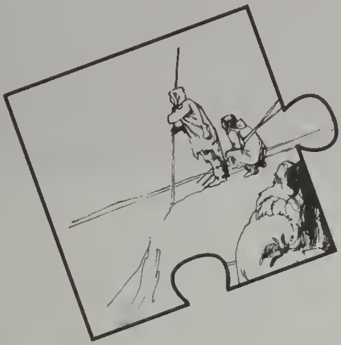
The evidence indicates that the source of the stone was often hundreds of kilometers away from where tools were made and used.

Paleo Indians in New England used a wide range of stone for their tools. These included both cherts (sedimentary rock) and rhyolites (igneous or volcanic rock). The three most important sources were located in the northern portions of what are now Vermont, New Hampshire and Maine. Knowing the location of these sources gives us a starting point for understanding how Paleo Indians moved through their landscape.

Many techniques can be used to match artifacts with their sources. Most obvious is to look for geological outcrops with the same visual characteristics—color, texture, fossils—as the artifacts. However, since visual comparisons are not always reliable, more precise analytical techniques are also used. These include thin sectioning, in which samples are cut and polished to reveal their internal structure, as well as different kinds of chemical analysis.

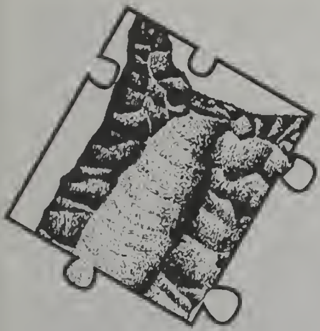
Recent studies have confirmed the identity of two of the most important quarries used by Paleo Indians in New England. These are the veins of rhyolite at Mt. Jasper, New Hampshire, and the chert outcrops around Munsungan Lake, Maine.

Paleo Indians making fluted points
Pen and ink drawing by Ivan Kocsis
Courtesy of the Royal Ontario Museum,
Toronto, Canada



Putting the Pieces Together

After collecting evidence, a scientist must organize the information into explanations that can be tested. A scientist's most powerful tool is not a computer or expensive analytical device; it is the ability to use his or her own brain to think clearly and creatively.

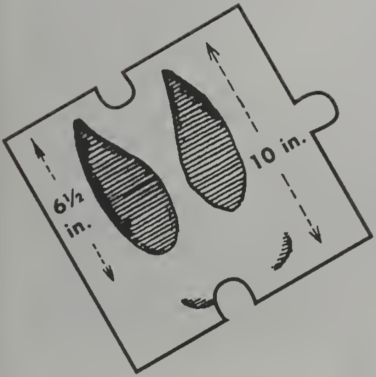


Tools: Hypotheses and Models

Among the tools used by archaeologists to help sort and process evidence are *hypotheses* and *models.*

A *hypothesis* is a specific answer to a problem that can be tested against evidence. For example, a good question is: Why did the style of fluted points change over time? One hypothesis is that the different styles reflect changes in the animals being hunted.

A good hypothesis is specific, testable and predictive. The goal is to improve our understanding of the evidence by asking ever better questions of it.



A *model* is a combination of hypotheses that provide a broader explanation of why things happened. For example, one model of Paleo Indian culture is that it was innovative and adapted quickly to changes in the environment. A competing model is that Paleo Indian culture was conservative and designed for survival in cold conditions.

How can we use these two models to explain the end of the Paleo Indian period? In the first, Paleo Indians may have changed with their environment and developed the Archaic period cultures that follow the Paleo Indian period in New England. The second model suggests that Paleo Indian people may have continued to move north, perhaps to what is now northern Canada, to maintain their culture in a colder, more familiar environment.

Human behavior, past or present, is complex. If we are to understand people and choices they make, our explanations must be as sophisticated as the people themselves.

What We Still Don't Know

While we have learned more about the Paleo Indians and know that they were resourceful, tough and mobile, we still know very little about the people themselves or their culture.

What did they look like?

How did they dress?

What language did they speak?

What were their stories, their music?

What were their beliefs?

How did they see themselves in relation to their world, to life and death?

Although the answers to these questions may remain unknowable, one thing is certain. Paleo Indians and we are fundamentally the same. Their ability to cope with a changing world, to develop tools to meet their needs and to find new solutions to problems, was no less skilled than our own.

Why study the past? Because in our world of change, it may be that these ancestors still have much to teach us.

Reconstruction of Paleo Indian life at the West Athens Hill site, Hudson Valley, New York. Courtesy of the New York State Museum, Albany, N.Y.

For more information...

Visit the following exhibitions:

12,000 Years in Maine. The Maine State Museum, Augusta, Maine, (207) 287-2301.

This exhibition includes artifacts from several Paleo Indian sites in Maine, a large-scale mural depicting life at the Atkins site, and a video on making a fluted point.

Hidden Creek. The Mashantucket Pequot Museum and Research Center, Mashantucket, Conn., (860) 572-6800.

A life-sized, interactive re-creation of a Late Paleo Indian caribou kill site in northeastern Connecticut.

Ice Age Hunters. The New York State Museum, Albany, N.Y., (518) 474-5877.

A life group depicting New York's first people at a quarry site in the Mid-Hudson Valley, 12,000 years ago.

Read:

Arthur Spiess, Deborah Wilson, and James Bradley
1998 "Paleo Indian Occupation in the New England-Maritimes Region: Beyond Cultural Ecology." *Archaeology of Eastern North America,* 26:201-264.

Esther Braun and David Braun
1994 *The First Peoples of the Northeast.* Moccasin Hill Press, Lincoln, Mass. 01773